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ABSTRACT

The state of information about research in communications is presently in chaos, and only careful systems analysis and publication of clearinghouse-type information can cure the jumble of project topics now under study in the field. The whole system of communications research requires meticulous monitoring, managing, continuous updating with graphic models, and wide dissemination via newsletter. A system of rational procedures for the organization of communication research should be established along the lines of the research management and systems theory developed during World War Two. (CH)

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Nationalization of Communication Research

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When it comes to an overview of his chosen field, his chances of succeeding, and the effect on society of any success he might have, the communications researcher today is worse off than the average man who chooses to make a wager on the horses. The bettor at least has the racing form.

FACTORS AFFECTING DECISION MAKING

The beginning researcher often relies on word of mouth. Suggestions from an esteemed advisor, interest in a topic or perhaps some familiarity with a technique might be the stimulus that directs an effort which could consume considerable time and talent. Word of mouth is a notoriously poor basis for decision-making, yet many of us who could easily resist a "hot tip" on the stock market might invest considerable effort because some avenue of investigation was suggested to us. Mechanical factors also obtrude. Gerstenfeld has documented the effect of office placement on the flow of technical information within an organization.[1] Krippendorff has pointed out that the data we collect often determines the direction of research:

> The way data are recorded and made available to future users significantly determines what will one day be studied and what may be discovered. Unless meaningful proposals for the storing and manipulation of communication data are presented, communication research may severely constrain its potential contribution to knowledge.[2]

Admittedly, there are compilations available of dissertations and dissertation proposals, the latter presumably more in deference to the

territorial imperative than to furthering communication research.[3] What is needed are rational procedures for the organization of the communication research as a system.

PURPOSE

The purpose of this paper is to seek the establishment of a system for the rationalization of future communications research. The rationalization task is twofold: first, to categorize avenues of research numerically as in a library; second, to attach payoff factors to individual units within research avenues. The resulting network would benefit communication researchers, as it would provide a commonly accepted frame of reference, a vocabulary, and a medium or clearinghouse for current and future research. The system would be operated by a select, although representative, committee which would continuously monitor the appropriateness of the categories and payoff factors and update them at prescribed intervals to suit prevailing conditions. If disseminated in an appropriate graphic format, the newsletter could show the systemic relationships as does a PERT chart, and also be as current as the stock market quotations.

NOW IS THE TIME

As far as the technology of dissemination is concerned, communications research is at a crossroads. Information retrieval systems are developing (e.g., SCA has joined ERIC and increasing numbers of universities and research facilities are adding teleprocessing capability for entry to ERIC), and the technology is expanding (e.g., new microfische systems are increasing

in importance).[4] Now is the time for a rationalization of communication research--organizing the discipline on a rational basis. That the "systems approach" is the best way to do this should be obvious to the members of this division.

COOPERATIVE COMPILATIONS AND CATEGORIZATIONS

The first step in the task described above has already been attempted by many compilers. The standard works in the Speech field include: Matlon and Matlon,[5] Frandsen,[6] and Thower.[7] Essentially these are author and key-word indexes and tables of contents. Here, also, should be included the listings of organizations such as that put out by the Council of Communication Societies.[8] If we allow the four scientific processes of identification, categorization, experimentation, and generalization to be sequential, this is valuable work indeed; but it is more in the domain of identification than categorization, as the categories are not natural and rarely as useful as might be hoped.

One step ahead of the first order of classification are the works of Stone,[9] Jenkins,[10] and Malandro and Porter.[11] Here a natural system of categorization is considered both with actual listings and by building a theoretical basis. It must be admitted that while the concept of a classification of this nature is, ipso facto, superior to mere identification, the efforts listed above have met with varied success. For example, while Stone confidently entitles his paper, "Conceptual Divisions Within the Speech Communication Association," he then issues a disclaimer:

> This paper is not an attempt to define the overall field of speech communication or any of its respective divisions--its author does not feel competent to accomplish such an end.

This must be contrasted with the veritable manifesto issued by the Information Systems Division of ICA. With a systems approach a clear definition is not a luxury nor something one can shrug off, but a necessity. Stone does, however, describe such important factors as SCAIRS (Speech Communication Information Retrieval System) and the role of a thesaurus and descriptors. A deeper insight into the machinery of retrieval systems is provided by Jenkins, who points out the important differences of two types of descriptors--derived descriptors and assigned descriptors. According to Jenkins, no clear advantage is allowed to either of the mutually exclusive systems. The derived descriptors do not require personnel familiar with the discipline and subsequently can be compiled by machine. They are, however, contaminated by such things as "eye-catching" titles which give an abstract of what the author would have liked to have written--not what is actually written. The assigned descriptors, while free from the latter handicap, do require indexers who are familiar with the discipline, since they must make judgments about the material; so assigned descriptors cannot be handled by machine. What is important to the present paper is that the techniques are presently available and the job can be done.

Explicitly claiming that they were trying to provide a McLuhanesque "rear-view mirror" of the recent past so as to make predictions for the future, Malandro and Porter provide a quantified content analysis of the

material in the national Speech journals. By providing data and a Plot A-Trend graph they give the reader the capability of choosing his own permutations and combinations of categories (e.g., Mass Communication, Listening, Intercultural Communication) and the number of articles in different journals. By analyzing the material of the past they make recommendations for the future. For example, they recommend that the Quarterly Journal of Speech and Speech Monographs be renamed Quarterly Journal of Humanistic Communication and Communication Behavior Monographs, respectively. They also put in a plea for a more efficient information retrieval system.

MANAGEMENT OF COMMUNICATION RESEARCH

The concept of management of research provides the point de depart from former practice in the communications field. The literature on the management of research in business and industry is, however, very extensive. Our technological society simply demands the management of research for commerce and defense. Systems thinking began with a military imperative; American sources claim the Manhatten project as the instigator, and British sources claim that operations research began with the mathematical routings of convoys across the hazardous Atlantic in World War Two. Whatever the origins, it is clear that war and commerce have had a clear lead on academia.

J. Herbert Holloman points out that the management of research is a science in itself:

> Science is the resource from which new technology derives, and science is crucial to it. The use of science, particularly for economic purposes depends upon institutions and attitudes that

> are different from those necessary for the creation of science. The use of science and the development of new technology is a process that takes place outside of laboratories--the work place of science--but inside plants and in the market. New developments frequently do require new details of knowledge that can be produced by scientific techniques. Science of this kind is not the stimulus to innovation but its servant.[12]

ASSESSMENT

Assessment of research is complicated by the fact that some of the important benefits emerging from research are not directly related to the primary objective. These benefits include the way in which a project is integrated with existing knowledge, the "spin-offs" to other research avenues (perhaps in other disciplines), prestige considerations and training graduate students as researchers. The primary objective, however, remains the focus of attention for members of a discipline wishing to be involved in a coherent research plan.

Supposing that a committee could identify all the tasks to be undertaken by communication researchers, their next task would be to assess the potential benefits accruing to the accomplishment of the tasks. By revealing the inter-relationships between the various tasks and the monitoring the feedback from the various researchers engaged in research (that is, both the numbers of researchers in each avenue of activity and their progress), all the elements of research management would be present.

NETWORKING AND GRAPHIC REPRESENTATIONS

A graphic network has the natural advantage of displaying a system in such a manner that the inter-relationships of the component parts of the system are obvious. Also, there is provided a common vocabulary for

observers and controllers of the system and an easily identified locus of attention. One such system, Program Evaluation and Review Technique (PERT), has been described by Cook in a manner relevant to this paper.[13] More specifically, Applbaum and Anatol have investigated the application of PERT to communication research planning.[14] The following aspects of PERT are useful to the present paper and will be borrowed.

The network is read from left to right and is made up of circles connected by arrows. The circles represent events which are tasks to be accomplished and have no duration. The arrows represent activities which are work efforts required to complete a task. Activities take time and resources.

Event

Activity ⟶

Thus, the network is a flow diagram consisting of activities and events which must be accomplished to reach the program objective. The flow diagram shows the planned sequences of accomplishment, interdependencies, and inter-relationships of the activities and events. The events can be assigned numbers and dates and the activities can be assigned times and amounts of consumables. The events could be classified in a library-like fashion.

This paper envisages a committee of experts deciding on a payoff co-efficient to be assigned to each event. The payoff factor would depend to some extent on the opinions of the committee and to some extent on the

avenues that might be opened up if the task is attained. For example, an event might be a machine translatable language which might relieve a bottleneck once it was proved operational. In such a case it might be assigned a higher payoff factor than might normally accrue to it in the judgment of its intrinsic worth.

Although it may require considerable experience and foresight to attach a payoff factor to some desired event, it seems more practical to expect an experienced researcher to be able to estimate time and uncertainty. Time in a PERT chart is arrived at by a very simple expedient: an experienced person is asked for an estimate of the optimistic (shortest) time, the pessimistic (longest) time, and the most likely time. A formula has become accepted:

$$t_e = \frac{a + 4m + b}{6}$$

t_e = expected time which has a 50-50 chance of being equalled in practice.

a = optimistic time

b = pessimistic time

m = most likely time

Uncertainty can be expressed as a ratio or as a percentage. This measures the likelihood of success or failure and as a co-efficient enters at many points in mathematical decision making and research planning.

IT MUST BE A TEAM EFFORT

The economist Edwin Mansfield, in making a case that modern technology demands enterprises of considerable size and that the individual innovator has been replaced by the team, quotes J. K. Galbraith to that effect:

> . . . technical development has long since become the preserve of the scientist and the engineer. Most of the cheap and simple inventions . . . have been made . . . (development) can be carried on only by a firm that has the resources associated with considerable size.[15]

Most of us would accept that this state of affairs applies to communications research as well.

The organizational overview of the educational researchers in the United States provided by Yates might provide a model for a survey of researchers which might be included as "communication researchers."[16] This in itself would be a task of considerable magnitude.

Certainly, once the commitment to a team approach which is consistent with systems thinking has been obtained, the management team would have to decide on procedures which are cognizant of the pitfall inherent to the implementation and organization of research as outlined by Ackoff, et al.[17] Scientific snobbery which allows a hierarchy in disciplines must be identified and eradicated. The overall strength of a system varies in inverse relationship to the strength of the political factions within it. For example, most of us have heard only half-joking remarks about ICA: "The anthropologists are taking over . . . or . . . The Michigan State clique is taking over . . ." These are factors that must be considered in any viable system.

ECONOMIC PROBLEM

The allocation of resources to communications research can be viewed as an economic problem simply because limited resources are necessarily allocated among competing projects with varying contingent benefits. However, economic analysis in the present case is not straightforward because of the difficulty of quantifying costs and benefits. The usual marginal analyses of economics are even further removed because of the lack of quantification (at least at present).

The necessity for quantification need hardly be stressed for the researcher committed to a systems approach, but one is always haunted by a caveat. Most of us are acutely aware of the misuse of such scores as Grade Point Average and Intelligence Quotient. Yet if we wish to use the tools provided by the discipline of economics or use mathematical decision-making, we must use scores of this type. It seems as though the communications researcher views quantified decision-making as our great grandfathers might have viewed an I.Q. score. Just as a hundred years ago it would be considered impossible to attach a number to intelligence, today it is a relative minority who note the necessity of further quantification. Most of the vocal detractors of quantified decision-making argue from the abuse to the abolition, which is an inherently fallacious position. It must be admitted, however, that in attempting to organize or manage research along rational lines that many paradoxes occur.

PARADOXES OF RESEARCH ADMINISTRATION

As one might expect, the literature is replete with different and often conflicting opinions. It is from business journals that most of these are drawn.

Warren C. Lothrop states rather explicitly:

> The picture is always raised of the need for measuring the results from the research laboratories to see whether they are not vastly greater than the money they cost. This accounting viewpoint is a carry-over from areas like production, where measurement of cost versus output is simpler. I cannot say that this is a paradox, since we have pretty well established by now that there is little merit in control as such, and that good administration in the ordinary sense may result in poor performance, and that creativity in research is not something that can be scheduled.[18]

James Brian Quinn claims: "Mathematical formulations are almost worthless in technological forecasting."[19] The father of operations research, Sir Solly Zuckerman, claims that ". . . attempts to predict and plan research progress can stifle its creativity."[20] It might be pedantic to point out that he used the conditional mood.

On the other hand, useful and specific techniques are outlined by equally eminent authorities, a sampling of which follows. The proposed communications research management team might be able to borrow from the "black box" concept proposed by Miller and Starr.[21] The same authors have an interesting idea about payoffs without a natural measure.[22] Mathematical models involving elements of linear programming and decision theory are developed for decision making in corporation reasearch by Dean and Nishry.[23] Some of the principles could usefully be adopted by

communications research analysts. Certainly the well-known Delphi technique described by McLoughlin could be used with profit for forecasting.[24] Technological forecasting is covered by Gerstenfeld,[25] as are the subjects of information flow[26] and non-technical failures.[27]

The work of Raiffa[28] provides a clear exposition of decision-making under uncertainty and provides an answer to the opinion of Quinn, who was quoted above. While not concerned with research decisions as such, the techniques outlined by Raiffa would be useful to committees charged with the future progress of research.

If the above recommendations were adopted, the communications researcher would be able to stand outside his field and observe it as the astronauts observed the earth while they were returning from the moon. The whole system of communication research, meticulously monitored, carefully managed, continuously updated with graphic models efficiently disseminated to interested parties may seem an impossible ideal today. It is an ideal which, if pursued, would yield immediate practical benefits and an immense payoff in the future.

Footnotes

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[3]Kenneth R. Sparks, A Bibliography of Doctoral Dissertations in Television and Radio (Syracuse, New York: Syracuse University School of Journalism, 1965); and Ned A.Shearer (ed.), Bibliographic Annual in Speech Communication (New York: SCA, 1970).

[4]Lawrence Lessing, "Microfilm Emerges from its Dusty Corner," Fortune, LXXXVI No. 2 (August, 1972) p. 140.

[5]Ronald J. Matlon and Irene R. Matlon (eds.), Table of Contents and Index for the QJS, SM, TST, SSJ, WSJ, CSSJ, TS (New York: Speech Communications Association, 1972).

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[11]Loretta A. Malandro and D. Thomas Porter, A Content Analysis of the National Journal Articles--Trends in the Field of Speech Communication 1915-1971, a paper to the SCA Convention (Chicago: December, 1972).

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[14]Ronald L. Applbaum and Karl Anatol, "PERT: A Tool for Communication Research Planning," Journal of Communication, XXI (December, 1971), pp. 368-380.

[15]Edwin Mansfield, The Economics of Technological Change (New York: Norton, 1968), p. 8; quoting J. K. Galbraith, American Capitalism (Boston: Houghton Mifflin, 1952) pp. 91-92.

[16]"The Organization of Educational Research in the United States of America," The Role of Research in Educational Change, Alfred Yates (ed.), (Palo Alto: Pacific Books, 1971), p. 135.

[17]Russell Ackoff, S. K. Gupta, and J. Sayer Minas, Scientific Method Optimizing Applied Research Decisions (New York: John Wiley, 1962), p. 405.

[18]Warren C. Lothrop, Paradoxes in Research Administration, a paper to the Bureau of Business and Economic Research (East Lansing, Michigan: Michigan State University, February, 1959), p. 9.